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(54) MAT COATED PAPER FOR GRAVURE PRINTING AND ITS PRODUCTION

(57) Abstract:

PROBLEM TO BE SOLVED: To obtain a mat coated paper for gravure printing suitable for producing stamps having slight occurrence of missing dot, excellent half-tone dot reproducibility and extremely low white paper glossiness and to provide a method for producing the mat coated paper.

SOLUTION: At least one side of a base paper for coating is coated with a coating composition containing 75-85 wt. % based on the whole pigment, of agglutinative spindle-shaped precipitated calcium carbonate having 3.0-5.0 μm average particle diameter in a secondary particle shape and 15-25 wt. %, based on the whole pigment, of kaolin having 1.0-2.0 μm average particle diameter and matted by a super calender or a soft calender.

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CLAIMS

[Claim(s)]

[Claim 1] In the lusterless application paper for gravures which comes to prepare the coating layer which makes a pigment and adhesives a principal component on stencil paper By containing the flocculation nature spindle-like precipitated calcium carbonate of 3.0-5.0 micrometers of mean particle diameters in an aggregated-particle configuration, and making the above-mentioned pigment contain the kaolin of 1.0-2.0 micrometers of mean particle diameters at 15 - 25% of the weight of a rate 75 to 85% of the weight It is JIS about blank paper glossiness. Lusterless application paper for gravures characterized by considering as 20% or less by the measurement according to the specification of P8142.

[Claim 2] In the manufacture technique of the lusterless application paper for gravures which carries out gloss attachment finishing of the aquosity coating liquid which makes a pigment and adhesives a principal component on stencil paper after drying and preparing a coating layer, a coating and The flocculation nature spindle-like precipitated calcium carbonate of 3.0-5.0 micrometers of mean particle diameters in an aggregated-particle configuration to the above-mentioned pigment 75 - 85 % of the weight, By making the kaolin of 1.0-2.0 micrometers of mean particle diameters contain at 15 - 25% of the weight of a rate, and performing gloss attachment by the supercalender or the soft calender It is JIS about blank paper glossiness. The manufacture technique of the lusterless application paper for gravures characterized by considering as 20% or less by the measurement according to the specification of P8142.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention has 20% or less of the blank paper glossiness needed in order to brew the high-class feeling which lusterless application paper has in a limited minute area like especially stamps, and relates to the lusterless application paper for gravures occurrence of a missing dot excelled [paper] in half-tone-dot repeatability few, and its manufacture technique.

[0002]

[Description of the Prior Art] Since it can change the thickness of ink and can express the shade of a picture image by changing the depth of the concavity of a printing plate, the characteristic feature of gravure has the wide width of face of gradation, and is excellent in the repeatability applied to halftone from the highlight section, and is in the place which can print a beautiful photograph. Therefore, it has come to carry out expansion use in many fields recent years increasingly.

[0003] Blank paper glossiness is higher than the former, in order to brew the tone which whose lusterless application paper is decent and is deep as compared with the gross tone application paper which has high printing gloss, a high-class feeling is strong, and it comes to be broadly used for covers, such as various books and a magazine, a high-class poster, a catalog, a calender, and also stamps, and is one of the application converted papers with a high general-purpose value. In the stamps especially using lusterless application paper, in order to demonstrate the effect which lusterless application paper has in a limited small area to the maximum extent, it is asked for 20% or less of low glossiness still severe than the former.

[0004] The principle of gravure is a method which transfers the ink to direct paper by ****, after filling up with ink the fraction into which the printing plate was dented. Therefore, since it is easy to spoil the repeatability of a missing dot or a half tone dot, smooth nature and the form qualities demanded, such as compressive etc., are severe.

[0005] Generally lusterless application paper is manufactured by two kinds of technique. One of them produces commercially the coating constituent which blended so much the pigment (it is usually 0.4-10.0 micrometers at a mean particle diameter) with a grain size coarser than the pigment (it is usually 0.1-2.0 micrometers at a mean particle diameter) currently used in usual gross tone application paper as it is on a stencil paper front face, without carrying out smoothing finishing by ***** etc. after an application and xeransis, or it is performing and producing slight ***** processing commercially. Other one is the manufacture technique which processes application paper with a high linear pressure comparatively with the so-called matte roll which split-face--ization-processed the front face of a calender, and is finished. These processings tend to reduce the smooth nature of space remarkably, and problems, such as causing the increase in a missing dot and the aggravation of half-tone-dot repeatability which were mentioned above as a result, have produced them.

[0006] For the purpose which cancels such a fault, conventionally to JP,06-73698,A Although a coating and the manufacture technique of the grinding lightweight coated paper for gravures that it dries and

blank paper glossiness becomes 40% or less are indicated, the finishing coating liquid which contains the 50 or more sections of whittings with a particle size of 0.5-3.0 micrometers in stencil paper for predetermined under coat coating liquid after a coating If it is going to stop blank paper glossiness low 20% or less, more whittings must be blended, it will become the inclination that a missing dot gets worse as the result, and the transition to the blank paper side of ink etc. will further seldom say the application paper obtained as the quality which can be satisfied.

[0007] Moreover, the amount of combination of the whiting whose flocculation nature precipitated calcium carbonate and mean particle diameter of the aggregated-particle configuration whose mean particle diameter is 1.3 micrometers or more at JP,08-27694,A are 2.0 micrometers or more is 50 - 90 weight section to the pigment 100 weight section. Although the manufacture technique of the lusterless application paper for gravures which makes blank paper glossiness 40% or less by setting the rate of a compounding ratio of a flocculation nature precipitated calcium carbonate and a whiting to 1:1-1:8 is indicated This technique must also blend many whittings with a coarse particle size, in order to stop blank paper glossiness low 20% or less, and it tends to cause problems, such as a missing dot and transition of ink, as a result. [as well as the above]

[0008] Thus, the blank paper glossiness obtained with the technique developed until now was the thing of 40% or less of level with almost all techniques. In the stamps said that it is the smallest work of art Although the blank paper glossiness of the above-mentioned level is inadequate and 20% or less of the blank paper glossiness which stopped glossiness further is needed in order to brew the sensibility with the depth which the lusterless application paper which the design original author imagined in a small printing area very much has and which was fallen and attached It was difficult to obtain the lusterless application paper for gravures is 20% or less of blank paper glossiness, and the missing dot excelled [paper] in printabilities, such as half-tone-dot repeatability, few with old technique.

[0009]

[Problem(s) to be Solved by the Invention] It has 20% or less of the blank paper glossiness needed in order that this invention may brew the high-class feeling which lusterless application paper has in a limited minute area like especially stamps about the lusterless application paper for gravures, and its manufacture technique, and which was fallen and attached, and occurrence of a missing dot offers the lusterless application paper for gravures which was excellent in half-tone-dot repeatability few, and its manufacture technique.

[0010]

[Means for Solving the Problem] this invention person has 20% or less of the blank paper glossiness needed in order to brew the high-class feeling which lusterless application paper has in a limited minute area like stamps. And the result which repeated the research zealously about the lusterless application paper for gravures occurrence of a missing dot excelled [paper] in half-tone-dot repeatability few, and its manufacture technique, By carrying out ***** processing of the application liquid which blended the kaolin which has the precipitated calcium carbonate which has the shape of a spindle shape which has a specific mean particle diameter and was suitable for low gloss, and a specific mean particle diameter at a rate of the amount of specialization, respectively after an application and xeransis The lusterless application paper for gravures it is enabled whose to satisfy the above-mentioned property, and its manufacture technique are found out, and it came to complete this invention.

[0011] Namely, the lusterless application paper for gravures of this invention In the lusterless application paper for gravures which comes to prepare the coating layer which makes a pigment and adhesives a principal component on stencil paper By containing the flocculation nature spindle-like precipitated calcium carbonate of 3.0-5.0 micrometers of mean particle diameters in an aggregated-particle configuration, and making the above-mentioned pigment contain the kaolin of 1.0-2.0 micrometers of mean particle diameters at 15 - 25% of the weight of a rate 75 to 85% of the weight It is JIS about blank paper glossiness. It is characterized by considering as 20% or less by the measurement according to the specification of P8142.

[0012] Moreover, the manufacture technique of the lusterless application paper for gravures of this invention In the manufacture technique of the lusterless application paper for gravures which carries out

gloss attachment finishing of the aquosity coating liquid which makes a pigment and adhesives a principal component on stencil paper after drying and preparing a coating layer, a coating and The flocculation nature spindle-like precipitated calcium carbonate of 3.0-5.0 micrometers of mean particle diameters in an aggregated-particle configuration to the above-mentioned pigment 75 - 85 % of the weight, It is JIS about blank paper glossiness by making the kaolin of 1.0-2.0 micrometers of mean particle diameters contain at 15 - 25% of the weight of a rate, and performing gloss attachment by the supercalender or the soft calender. It is characterized by considering as 20% or less by the measurement according to the specification of P8142.

[0013]

[Embodiments of the Invention] Especially the stencil paper used by this invention is 50-100g/m² as a basis weight of stencil paper, for example, although not limited. It is suitably used in the domain of a grade. The pulp used in case of paper milling of stencil paper chooses suitably the pulp of mechanical pulps, such as chemical pulp obtained by the KP method which uses vegetable fibers, such as wood and cotton, as a raw material, or the SP method, and GP, TMP, CTMP, corrosion gage point, SCP, or a bleached pulp, and it can be used for it. It is not limited especially about the paper-making technique, either, and paper making is carried out by the neutral paper-making technique performed in the usual paper-making technique, for example, the acid paper-making technique which paper-making PH performs in the 4.5 neighborhoods, or the PH7.0 neighborhood. Moreover, a paper machine also chooses suitably the paper machine of either a Fortlinear paper machine, a cylinder machine, the combination machine of a long network and a cylinder mould, the paper machine that equipped the twin wire or a Yankee paper machine, and can use it.

[0014] The loading material currently generally used in the paper manufacture industry as a paper-making loading material blended with paper-making stencil paper with pulp is used. For example, talc, a whiting, a precipitated calcium carbonate, clay, a titanium dioxide, etc. are illustrated.

[0015] In addition, into stencil paper, chemicals, such as various kinds of yield improvers currently generally used, a paper durability improver, an inner ** sizing compound, a pitch control agent, or a defoaming agent, can be suitably used in the domain which does not spoil the purpose effect of this invention other than pulp fiber or a loading material.

[0016] At least on one side of the stencil paper for coatings which carries out lusterless application paper for gravures of this invention in this way, and was obtained All pigments contain [the flocculation nature spindle-like precipitated calcium carbonate of 3.0-5.0 micrometers of mean particle diameters] 75 to 85% of the weight in an aggregated-particle configuration. And since the kaolin of 1.0-2.0 micrometers of mean particle diameters carries out the coating of the coating constituent which all pigments contained 15 to 25% of the weight and gloss attachment by the supercalender or the soft calender is performed Occurrence of a missing dot serves as the lusterless application paper for gravures with 20% or less of very low blank paper glossiness which was excellent in half-tone-dot repeatability few.

[0017] Here, the flocculation nature precipitated calcium carbonate in the lusterless application paper for gravures of this invention has the big characteristic feature for an aggregated-particle configuration being the spindle-like, and the blank paper glossiness to which blank paper glossiness rose and was suitable for especially the manufacture of stamps cannot obtain 20% or less of lusterless application paper in a precipitated calcium carbonate the cube form generally used or needlelike. Moreover, especially the amount of combination has 75 - 85% of the weight of the desirable domain of all pigments, and at less than 75 % of the weight, if 20% or less of low gloss is not acquired and 85 % of the weight is exceeded, while coating liquid viscosity will rise and workability will be affected, deterioration of a printing quality will be caused.

[0018]

[Example] An example is given to below and the effect of this invention is concretely explained to it. Of course, this invention is not limited to the example of *****. In addition, in the following examples and examples of a comparison, each appraisal method of blank paper glossiness, a missing dot, and half-tone-dot repeatability is as being shown below.

[0019] Blank paper glossiness is JIS. It measured according to the specification of P8142. Moreover, a missing dot and half-tone-dot repeatability evaluated the printed matter which the ink viscosity which is 50kg [/cm] *****, and 45m conditions for /of print speeds, and was measured with the ***** cylinder plate method with the Printing Bureau type gravure testing machine (product made from the Kumagai **** industry) printed using the gravure ink which is 11 seconds with viewing and the enlargement, and judged it in the four following phases. the criterion in that case -- O: -- especially excellent **: O: outstanding -- it was based on each a little inferior criteria of ** x: inferior

[0020] (Example 1) Both added 1.5% of aluminum sulfates, and 1.0% of sizing compounds, after adding talc (above) (Japanese talc company make) 10% to pulp slurry 100% which consists of the LBKP90% which carried out beating so that it might be set to 500ml, and NBKP10%, and freeness (csf) prepared the pulp. Paper making of this pulp was carried out with the Fortlinear paper machine, and 65g of basis weights/and the stencil paper for coatings of m2 were obtained.

[0021] As a pigment, in an aggregated-particle configuration, 80% (white a masonry work company make) of the flocculation nature spindle-like precipitated calcium carbonates of 4.0 micrometers of mean particle diameters, Kaolin (***** heart company make) of 1.5 micrometers of mean particle diameters 20% is used. The sodium-polyacrylate (product made from Aron T:**** synthesis) 0.5 section is added as a dispersant per pigment 100 section. Water is added so that solid-content concentration may become 60%. as a thickener further after variance The sodium-alginate 0.5 section, As adhesives, the 15 sections (LX407G9:Nippon Zeon make) of styrene butadiene copolymer latexes were added, it mixed, and the pigment slurry of about 60% of solid-content concentration was prepared.

[0022] The high-speed blade coating machine for a research is used for the above-mentioned coating liquid, and the amount of one side coatings of stencil paper is 15g/m2. The coating was carried out to one side and it dried so that it might become.

[0023] It finished with the linear pressure of 100kg/cm, using the obtained application paper super ***** (product made from the Kumagai **** industry) for laboratories.

[0024] (Example 2) As a coating pigment, except blending the flocculation nature spindle-like precipitated calcium carbonate (white a masonry work company make) whose mean particle diameter is 3.0 micrometers 80% in an aggregated-particle configuration, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0025] (Example 3) As a coating pigment, except blending the flocculation nature spindle-like precipitated calcium carbonate (white a masonry work company make) whose mean particle diameter is 5.0 micrometers 75% in an aggregated-particle configuration, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0026] (Example 4) As a coating pigment, except blending the kaolin (***** heart company make) whose mean particle diameter is 1.0 micrometers 15%, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0027] (Example 5) As a coating pigment, except blending the kaolin (***** heart company make) whose mean particle diameter is 2.0 micrometers 20%, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0028] (Example 1 of a comparison) As a coating pigment, except blending the flocculation nature spindle-like precipitated calcium carbonate (white a masonry work company make) whose mean particle diameter is 1.0 micrometers 80% in an aggregated-particle configuration, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0029] (Example 2 of a comparison) As a coating pigment, except blending the flocculation nature spindle-like precipitated calcium carbonate (white a masonry work company make) whose mean particle diameter is 6.0 micrometers 80% in an aggregated-particle configuration, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0030] (Example 3 of a comparison) As a coating pigment, except blending the kaolin (***** heart company make) whose mean particle diameter is 4.0 micrometers 20%, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed.

[0031] (Example 4 of a comparison) the flocculation nature spindle-like precipitated calcium carbonate (white a masonry work company make) whose mean particle diameter is 4.0 micrometers in an aggregated-particle configuration as a coating pigment -- kaolin (***** heart company make) of 20% and 1.5 micrometers of mean particle diameters 80% -- except blending, it was made the same as that of an example 1, the lusterless application paper for gravures was obtained, and the quality evaluation was performed

[0032] The evaluation result of the lusterless application paper for gravures created in the above-mentioned examples 1-5 and the examples 1-4 of a comparison and its printed matter was as being shown in Table 1.

[0033]

[Table 1]

		実験例					比較例				
		1	2	3	4	5	1	2	3	4	
無機炭酸カルシウム 配合率(%)	80	80	76	85	80	80	80	80	80	80	20
カオリン 配合率(%)	20	20	25	15	20	20	20	20	20	20	20
無機炭酸カルシウム 平均粒子径 μm	4.0	3.0	6.0	4.0	4.0	1.0	6.0	4.0	4.0	4.0	
カオリン 平均粒子径 μm	1.5	1.5	1.5	1.0	2.0	1.5	1.5	4.0	1.5		
白紙光沢度 (%)	17.3	10.0	18.6	16.8	18.8	42.5	18.2	31.4	54.1		
ミッショングット	○	○	○	○	○	○	○	×	△	○	
網点再現性	○	○	○	○	○	△	×	△	○		

[0034] As for the lusterless application paper for the gravures produced in the examples 1-5, and its printed matter, a missing dot and half-tone-dot repeatability excel [glossiness / blank paper] the result of the above-mentioned table in 20% or less. However, even if blank paper glossiness is 20% or less, a missing dot and half-tone-dot repeatability come to be inferior [if a flocculation nature spindle-like precipitated calcium carbonate or the mean particle diameter of a kaolin, and the domain specified by combination are exceeded, blank paper glossiness will exceed 20%, or].

[0035]

[Effect of the Invention] It has 20% or less of the blank paper glossiness needed by this invention in order to brew the high-class feeling which lusterless application paper has in a limited minute area like especially stamps, and occurrence of a missing dot was able to obtain the lusterless application paper for gravures which was excellent in half-tone-dot repeatability few.

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